CIVIL-TECH CONSULTANTS & ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC - 17025 : 2005

Job No.: CTCE/BBMP/WNo. 10/BE/WMM/Gradation/2013-14

22.04.2013

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **M/s. Benaka Enterprises,** Contractor, Bangalore.

Name of Work : Metalling and Asphalting to roads in Venkatagiriyappa Layout in Ward No. 10, BBMP, Bangalore.

Reference : AEE/Vidyaranyapura/PR/14/2/2013-14 Dated: 19.04.2013

Date of Testing : 22.04.2013

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25730**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	754	754	2.9	97.1	95-100
22.4	6458	7212	28.0	72.0	60-80
11.2	4867	12079	46.9	53.1	40-60
4.75	3792	15871	61.7	38.3	25-40
2.36	3325	19196	74.6	25.4	15-30
0.600	4228	23424	91.0	9.0	8-22
0.075	2021	25445	98.9	1.1	0-8

Note:

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22/4/13

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22.04.2013

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**M/s. Benaka Enterprises,** Contractor, Bangalore.
Name of the Work	Metalling and Asphalting to roads in Venkatagiriyappa Layout in Ward No. 10, BBMP, Bangalore.
Reference	AEE/Vidyaranyapura/PR/14/2/2013-14 Dated: 19.04.2013
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	22.04.2013

Sl No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	375	381	379	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	85	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	293	296	292	
4	Aggregate Impact value = percent fines	21.87	22.31	22.96	
	100* (W_2/W_1)%				22.38

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/WNo. 10/BE/WMM/Shape.T/2013-14 : 22.04.2013

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	: **M/s. Benaka Enterprises,** Contractor, Bangalore.
Name of Work	: Metalling and Asphalting to roads in Venkatagiriyappa Layout in Ward No. 10, BBMP, Bangalore.
Reference	: AEE/Vidyaranyapura/PR/14/2/2013-14 Dated: 19.04.2013
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Wet Mix Macadam
Date of Testing	: 22.04.2013

Result : Flakiness Index = **13.28%**

Elongation Index = **11.69%**

Result : Combined Flakiness & Elongation index **24.97%**

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22.04.2013

ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **M/s. Benaka Enterprises,** Contractor, Bangalore.

Name of Work : Metalling and Asphalting to roads in Venkatagiriyappa Layout in Ward No. 10, BBMP, Bangalore.

Reference : AEE/Vidyaranyapura/PR/14/2/2013-14 Dated: 19.04.2013

Date of Testing : 22.04.2013

Material : WMM

Sample Location : WMM Mix Plant

As per MORTH Table 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	21.75	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CTCE/BBMP/WNo. 10/BE/SDBC/Bitumen/2013-14 29.04.2013

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**M/s. Benaka Enterprises,** Contractor, Bangalore.
NAME OF THE WORK	Metalling and Asphalting to roads in Venkatagiriyappa Layout in Ward No. 10, BBMP, Bangalore.
REFERENCE	AEE/Vidyaranyapura/PR/14/2/2013-14 Dated: 19.04.2013
SAMPLE I/D	Roads in Venkatagiriyappa Layout, Ward No. 10
DATE OF TESTING	29.04.2013

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475.5	476.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	24.5	23.50
7. Bitumen content in %	4.90	4.70
8. Average	**4.80**	

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REFERENCE	AEE/Vidyaranyapura/PR/14/2/2013-14 Dated: 19.04.2013
SAMPLE I/D	Roads in Venkatagiriyappa Layout, Ward No. 10
DATE OF TESTING	29.04.2013

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	22.15	4.66	4.66	95.34	90-100
4.75	251.34	52.86	57.52	42.48	35-51
2.36	49.29	10.37	67.88	32.12	24-39
1.18	47.47	9.98	77.87	22.13	15-30
0.3	39.74	8.36	86.22	13.78	9-19
0.075	43.83	9.22	95.44	4.56	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	23.28	4.89	4.89	95.11	90-100
4.75	241.39	50.66	55.54	44.46	35-51
2.36	59.57	12.50	68.05	31.95	24-39
1.18	56.39	11.83	79.88	20.12	15-30
0.3	42.85	8.99	88.87	11.13	9-19
0.075	28.59	6.00	94.87	5.13	3-8

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